

Code: ME6T5

**III B.Tech - II Semester – Regular /Supplementary Examinations
March 2020**

**INDUSTRIAL ENGINEERING AND MANAGEMENT
(MECHANICAL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1.

- a) State law of Maslow's hierarchy of human needs.
- b) Enumerate any four Fayol's principles of management.
- c) What are the essential qualities of good leadership?
- d) Write the features of "process layout".
- e) What are the main objectives of performing inspection?
- f) What is ISO 9000 series?
- g) Write any four principles of motion economy related to 'use of the human body'.
- h) Why it is necessary to consider allowances in computing standard time?
- i) List the guidelines for constructing a project network?
- j) What does the forward-pass procedure accomplish in critical path method?
- k) Describe project crashing and contrast it to normal time.

PART – B

Answer any *THREE* questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Discuss the principles and limitations of scientific management. 8 M
- b) Explain the functions of management. 8 M
3. a) AP State Government is planning to establish one more “crude oil refinery”; which location would you suggest and why? 8 M
- b) Explain features of “functional organization” with suitable example. 8 M
4. a) In a single sampling plan, the manufacturer will prefer to have a large acceptance number. Explain why you agree or disagree. 8 M
- b) Explain the construction procedure of C chart along with its applications in manufacturing. 8 M
5. a) A job of a worker has been broken into three elements namely A, B and C. Four cycles of work were timed and the results of observations are given in the following table.

Job element	Cycle (observed time in minutes)				Rating
	1	2	3	4	
A	5	4	5	6	90
B	4	4	4	4	100
C	4	5	6	5	110

Calculate the normal and the standard time of the job, if company allowance is 10%. 8 M

b) Explain flow process chart with suitable example. 8 M

6. There are seven activities in a project and the time estimates (weeks) are as follows.

Activity	Time in weeks		
	<i>to</i>	<i>tm</i>	<i>tp</i>
A	2	6	10
B	4	6	12
C	2	3	4
D	2	4	6
E	3	6	9
F	6	10	14
G	1	3	5

The logical sequence of activities is:

- i. Activities A and B start at the beginning of the project.
- ii. When A is completed C and D start.
- iii. E can start when B and D are finished.

- iv. F can start when B, C and D are completed.
- v. E can start only when B and D are finished and is the final activity.
- vi. G can start when F is finished and is final activity.

Draw the project network and find expected project completion time? And also calculate the probability that the project will be completed at least 2 weeks earlier than expected.

16 M